Remarks

Applicant thanks the Examiner for his consideration of this application. Reconsideration of this application is requested in view of the above amendments and the following remarks.

Claims 1-24 and 26-46 are pending in this application, of which Claims 1, 13, 23, 24, and 45 are independent claims. Several claims have been amended to address minor informalities and/or typographical errors and/or to improve their wordings. Claim 25 has been cancelled, and Claims 26 and 36-38 have been amended to account for the cancellation of Claim 25. Some claims have been amended in other ways, as will be noted below.

At pages 2-13, the Office Action rejects Claims 1-3, 5-12, 23, 24, 27, 31-35, 45, and 46 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. (U.S. Patent No. 7,103,325) in view of Walton et al. (U.S. Patent Application Publication No. 2004/0082356). At pages 13-14, the Office Action rejects Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. and Walton et al., further in view of Yarnall et al. (U.S. Patent No. 5,769,032). At pages 14-16, the Office Action rejects Claim 13 and 20-22 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. and Walton et al., further in view of Bjorklund et al. (U.S. Patent No. 7,126,926). At pages 17-18, the Office Action rejects Claims 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Walton et al., and Bjorklund et al., further in view of Terry et al. (U.S. Patent No. 7,046,651). At pages 18-19, the Office Action rejects Claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Walton et al., and Bjorklund et al., further in view of Osawa et al. (U.S. Patent No. 5,457,808). At page 19, the Office Action rejects

Claims 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Walton et al., and Bjorklund et al. At pages 19-20, the Office Action rejects Claims 28 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. and Walton et al. At page 20, the Office Action rejects Claim 30 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Walton et al., and Yarnall et al. At pages 20-22, the Office Action rejects Claims 25, 26, and 36-44 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Walton et al., and Bjorklund et al. These rejections are respectfully traversed for at least the following reasons.

Claim 1 (including minor amendments as noted above) recites a system that includes,

> a baseband processor circuit located in a first portion of the single chip IC, the baseband processor circuit to handle data transmissions during a first operating mode in a channel between a first access point and a second access point; and
>
> a multi-antenna signal processing circuit located in a second portion of the single chip IC, the multi-antenna signal processing circuit to handle data transmissions during a second operating mode in said channel, said multi-antenna signal processing circuit being further adapted to: (a) receive M independent RF modulated input signals from said second access point; and (b) process said M independent RF modulated input signals using a channel mixing matrix to extract N independent data signals transmitted by said second access point;
>
> wherein said first operating mode and said second operating mode are to be automatically selected by the RF multi-antenna access point system based on a transmission condition in said channel.

The Office Action maintains that the combination of Jia et al. and Walton et al. teaches all of these elements. However, it is respectfully submitted that at least one element is *not* taught or suggested by this combination.

In particular, at page 3, the Office Action discusses that "Jia disclose[s] transmission and reception scheme . . . that uses channel condition to change the

transmission-operating mode. Jia's present invention teaches that it adaptively controls coding and modulation techniques for transmission . . . So it can be said that this invention is capable of selecting operating mode." Based on this paragraph, it appears that the Office Action is confusing a number of concepts.

First, as noted in the above excerpt from the Office Action, the Office Action asserts that Jia et al. teaches *adaptively controlling coding* and modulation techniques. That is, Jia et al. is an *adaptive* system. In contrast, the invention as claimed in Claim 1 *selects* between two modes.

Second, and in conjunction with this first difference, Jia et al. (noting, e.g., the cited portions (abstract, col. 2, lines 32-45, col. 3, lines 33-50, and col. 5, lines 51-54), as well as other portions thereof) always uses the *same* components to process signals (and adapts parameters of those components). In contrast, in Claim 1, a selection between the two modes corresponds to a selection between hardware used to process signals (i.e., operation in the first mode is associated with the baseband processor, and operation in the second mode invokes the multi-antenna processing circuit).

It is also noted that nowhere in either Jia et al. or Walton et al. has Applicant been able to locate teachings or suggestions that would remedy these deficiencies.

For at least these reasons, Applicant respectfully submits that Claim 1 is allowable over the cited references.

Claim 23 contains elements similar to those discussed in connection with Claim 1, and for at least the same reasons, is allowable over the cited references.

Claim 13 recites, among other elements, "a multi-antenna signal processing circuit situated in a first portion of the single chip IC and configured as a first access

point adapted to: (a) operate simultaneously with a first baseband processor situated in a second portion of the single chip IC, so that said first baseband processor handles data transmissions in a first mode between said first access point, in accordance with an 802.11x protocol, and a second access point under a first channel transmission condition, and said multi-antenna signal processor handles data transmissions in a second mode between said first access point and said second access point in accordance with an 802.11x protocol under a second channel transmission condition."

As noted above, the system of Jia et al. always uses the *same* components to process signals and adapts their parameters. Again, here in Claim 13, *different* components are to be used under different channel transmission conditions.

Again, Walton et al. fails to remedy this deficiency, and a review of Bjorklund et al. shows that it, too, fails to remedy this deficiency.

For at least these reasons, it is respectfully submitted that Claim 13 is also allowable over the cited references.

Claims 24 and 45 have now been amended to clarify when the multi-antenna processing circuit operates. In particular, each now includes the recitation that "the multi-antenna signal processing circuit is not utilized during the first operating mode."

This is, once again, in contrast with the cited references, in which the same components are used in all modes of operation and are adapted. Therefore, for at least this reason, Applicant respectfully submits that Claims 24 and 45 are also allowable over the cited references.

Given that all independent claims are allowable, it is respectfully submitted that all claims (Claims 1-46) are allowable.

In addition, Applicant has amended Claims 6 and 32 to specify that the computation of the recovered data signal (x) uses a recovered signal obtained from another integrated circuit. It is respectfully submitted that none of the cited references used to reject these claims teaches or suggests such an arrangement, and therefore, Claims 6 and 32 are further allowable for this reason.

Applicants further submit that the cited references used in their respective rejections fail to disclose or suggest all of the elements of at least the following dependent claims: Claims 11 and 15-19. In the case of Claim 11, the cited portions of Walton et al. fail to disclose or suggest any sort of localized encryption, as claimed (they discuss beam-steering, not encryption). In the case of Claims 15 and 16, the cited portions of Terry et al. discuss frame structures but fail to disclose or suggest the use of additional header data to identify either a high rate mode or a modulation format, as claimed, respectively. In the case of Claim 17, Osawa et al. (col. 2, lines 12-20), indeed, discusses the use of multicast transmissions, but Osawa et al. fails to disclose the use of different processing components for different multicast transmissions to different ranges, as claimed. With regard to Claims 18 and 19, Applicant respectfully submits that the cited portions of the cited references (Jia et al., Walton et al., and Bjorklund et al.) fail to discuss the use of the first baseband processor to communicate with a first set of targets during a first access period and the use of the multi-antenna signal processor to communicate with a second set of targets during a second access period (for example, the cited portions of Walton et al. are directed to rate, power, and timing control, rather than to the use of different components during different access periods for different sets of

targets). For at least these further reasons, it is respectfully submitted that Claims 11 and 15-19 are further allowable over the cited references.

Applicant may not have refuted any or all characterizations of either the claims or the prior art as found in the Office Action. However, the lack of such refutations is not intended to act as concurrence with such characterizations or waiver of the opportunity to make such refutations in the future.

Conclusion

Applicant respectfully submits that the above amendments and arguments fully address all grounds of rejection in the Office Action. In view of this, Applicant now respectfully requests prompt and favorable consideration of this response, reconsideration of this application, and withdrawal of all rejections.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

/Jeffrey W. Gluck/

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